

WHAT IS CLAIMED IS:

1. An information display system, comprising:
 - an information processing apparatus;
 - an information display apparatus which displays information held in the information processing apparatus, on a display surface; and
 - a pointing apparatus which points at an arbitrary position on a display image displayed by the information display apparatus; the pointing apparatus including,
 - an imaging device that images a range containing the position at which the pointing apparatus is to point on the display image, and outputs imaged image information corresponding to the range; and
 - the information processing apparatus including,
 - a pointing coordinate specification device to accept the imaged image information from the pointing apparatus, decide which part of display image information corresponding to the display image at an imaging point of time the imaged image information corresponds to, and specify coordinates of the position at which the pointing apparatus is to point, as pointing coordinates from a result of the decision,
 - a display image information storage device to store the display image information therein, and
 - a display image information generation device to composite and display a pointer cursor to and at the specified pointing coordinates on the display image information.
2. An information display system, comprising:
 - an information processing apparatus;
 - an information display apparatus which displays information held in the information processing apparatus, on a display surface; and
 - a pointing apparatus which points at an arbitrary position on a display image displayed by the information display apparatus; the pointing apparatus including an imaging device that images a range containing the position at which the pointing apparatus is to point on the display image, and outputs imaged image information corresponding to the range, and
 - a pointing coordinate specification device to accept the imaged image information from the imaging device, decide which part of display image information corresponding to the display image at an imaging point of time the imaged image information corresponds to, and specify coordinates of the position at which the pointing apparatus is to point, as pointing coordinates from a result of the decision; and

the information processing apparatus including a display image information storage device to store the display image information therein, and

a display image information generation device to composite and display a pointer cursor to and at the specified pointing coordinates on the display image information.

3. An information display system, comprising:

an information processing apparatus;

an information display apparatus which displays information held in the information processing apparatus, on a display surface; and

a pointing apparatus which points at an arbitrary position on a display image displayed by the information display apparatus; the pointing apparatus including an imaging device that images a range containing the position at which the pointing apparatus is to point on the display image, and outputs imaged image information corresponding to the range; and

the information processing apparatus including a pointing coordinate specification device to accept the imaged image information from the pointing apparatus, decide which part of display image information corresponding to the display image at an imaging point of time the imaged image information corresponds to, and specify coordinates of the position at which the pointing apparatus is to point, as pointing coordinates from a result of the decision,

a display image information storage device to store therein the display image information corresponding to the display image, and

a display image information generation device to generate the image information stored in the display image information storage device, as the display image information, and composite and display a pointer cursor to and at the pointing coordinates on the display image information as specified by the pointing coordinate specification device.

4. An information display system, comprising:

an information processing apparatus;

an information display apparatus which displays information held in the information processing apparatus, on a display surface; and

a pointing apparatus which points at an arbitrary position on a display image displayed by the information display apparatus; the pointing apparatus including an imaging device that images a range containing the position at which the pointing apparatus is to point on the display image, and outputs imaged image information corresponding to the range, and

a pointing coordinate specification device to accept the imaged image information from the imaging device, decide which part of display image information

corresponding to the display image at an imaging point of time the imaged image information corresponds to, and specify coordinates of the position at which the pointing apparatus is to point, as pointing coordinates from a result of the decision; and

the information processing apparatus including a display image information storage device to store therein the display image information corresponding to the display image, and

a display image information generation device to generate the image information stored in the display image information storage device, as the display image information, and composite and display a pointer cursor to and at the pointing coordinates on the display image information as specified by the pointing coordinate specification device.

5. The information display system as defined in claim 1, further comprising:

the range to be imaged being a imagable range which is set by a collimation device included in the imaging device, and the central part of the imagable range set by the collimation device being the position at which the pointing apparatus is to point, the coordinates of the position being acquired as the pointing coordinates.

6. The information display system as defined in claim 1, further comprising:

the decision on which part of the display image information corresponding to the display image at the imaging point of time the imaged image information corresponds to, being rendered by generating template image information from the imaged image information, and then performing pattern matching between the template image information and the display image information corresponding to the display image at the imaging point of time.

7. The information display system as defined in claim 1, the pointing apparatus being a portable information equipment which has an imaging function and a communication function.

8. The information display system as defined in claim 1, further comprising:

the pointing apparatus including a command input device, the information processing apparatus including a command processing device to accept and process a command from the pointing apparatus, and that, in the information processing apparatus, when the command is given from the command input device after the specification of the pointing coordinates, the command process being performed so as to reflect a result of the process on the pointing coordinates.

9. An information processing apparatus for use in the information display system as defined in claim 1, comprising:

functions of accepting the imaged image information outputted from the pointing apparatus, deciding which part of the display image information corresponding to the display image at the imaging point of time the imaged image information corresponds to, specifying the position at which the pointing apparatus is to point, as the pointing coordinates from the result of the decision, and thereafter compositing and displaying the pointer cursor to and at the specified pointing coordinates on the display image information.

10. A pointing apparatus for use in the information display system as defined in claim 2, comprising:

functions of deciding which part of the display image information corresponding to the display image at the imaging point of time the imaged image information by the imaging device corresponds to, and specifying the coordinates of the position at which the pointing apparatus is to point, as the pointing coordinates from the result of the decision.

11. A data processing program for the information processing apparatus, in which data processing to be performed by the information processing apparatus as defined in claim 9 comprises:

accepting the imaged image information outputted from the pointing apparatus, and deciding which part of the display image information corresponding to the display image at the imaging point of time the imaged image information corresponds to, and specifying the position at which the pointing apparatus is to point, as the pointing coordinates from the result of the decision, and thereafter compositing and displaying the pointer cursor to and at the specified pointing coordinates on the display image information.

12. A data processing program for the pointing apparatus, in which data processing steps to be performed by the pointing apparatus as defined in claim 10 comprises:

deciding which part of the display image information corresponding to the display image at the imaging point of time the imaged image information from the imaging device corresponds to, and

specifying the coordinates of the position at which the pointing apparatus is to point, as the pointing coordinates from the result of the decision.

13. A pointer cursor display method in an information display system having an information processing apparatus, an information display apparatus which displays information held in the information processing apparatus, on a display surface, and a pointing

apparatus which points at an arbitrary position on a display image displayed by the information display apparatus, comprising:

the pointing apparatus images a range containing the position at which it is to point on the display image, by an imaging device included in the pointing apparatus, and outputs imaged image information corresponding to the range, onto the information processing apparatus; and

the information processing apparatus side accepts the imaged image information from the pointing apparatus, decides which part of display image information corresponding to the display image at an imaging point of time the imaged image information corresponds to, specifies the position at which the pointing apparatus is to point, as pointing coordinates from a result of the decision, and thereafter composites and displays a pointer cursor to and at the specified pointing coordinates on the display image information.

14. A pointer cursor display method in an information display system having an information processing apparatus, an information display apparatus which displays information held in the information processing apparatus, on a display surface, and a pointing apparatus which points at an arbitrary position on a display image displayed by the information display apparatus, comprising:

the pointing apparatus images a range containing the position at which it is to point on the display image, by an imaging device included in the pointing apparatus, obtains imaged image information corresponding to the range, decides which part of display image information corresponding to the display image at an imaging point of time the imaged image information corresponds to, specifies the position at which the pointing apparatus is to point, as pointing coordinates from a result of the decision, and outputs pointing coordinate information for the specified pointing coordinates, to the information processing apparatus side; and

the information processing apparatus side composites and displays a pointer cursor to and at the pointing coordinate corresponding to the pointing coordinate information delivered from the pointing apparatus.

15. The pointer cursor display method in the information display system as defined in claim 13, further comprising:

the range to be imaged being a imagable range which is set by a collimation device included in the imaging device, and the central part of the imagable range set by the collimation device being the position at which the pointing apparatus is to point, coordinates of the position being acquired as the pointing coordinates.

16. The pointer cursor display method in the information display system as defined in claim 13, further comprising:

the decision on which part of the display image information corresponding to the display image at the imaging point of time the imaged image information corresponds to being rendered by generating template image information from the imaged image information, and then performing pattern matching between the template image information and the display image information corresponding to the display image at the imaging point of time.

17. An information display system, comprising:

an information processing apparatus;

an information display apparatus which displays information held in the information processing apparatus, on a display surface; and

a pointing apparatus which points at an arbitrary position on a display image displayed by the information display apparatus; the pointing apparatus including an imaging device that images an arbitrary range which is to be imaged by the pointing apparatus, and outputs imaged image information corresponding to the range, and

a pointing coordinate motion vector calculation device to compare the imaged image information at a current point of time and imaged image information temporally preceding the current point of time, as obtained by imaging a plurality of times, by or without, changing at least one of an imaging position and an imaging angle based on the imaging device, and then calculates a pointing coordinate motion vector from a result of the comparison; and

the information processing apparatus includes a display image information storage device to store therein display image information corresponding to the display image, and

a display image information generation device to composite a pointer cursor displayed on the display image information at the current point of time, to the display image information, and then display the pointer cursor at the position which is distant, in correspondence with the pointing coordinate motion vector calculated by the pointing apparatus.

18. An information display system, comprising:

an information processing apparatus;

an information display apparatus which displays information held in the information processing apparatus, on a display surface; and

a pointing apparatus which points at an arbitrary position on a display image displayed by the information display apparatus; the pointing apparatus including an imaging device that images a certain arbitrary range, and outputs imaged image information corresponding to the range; and

the information processing apparatus includes a pointing coordinate motion vector calculation device to compare the imaged image information at a current point of time as obtained from the imaging device of the pointing apparatus and imaged image information temporally preceding the current point of time, as obtained by imaging a plurality of times, by or without, changing at least one of an imaging position and an imaging angle of the imaging device of the pointing apparatus, and then calculate a pointing coordinate motion vector from a result of the comparison,

a display image information storage device to store therein display image information corresponding to the display image, and

a display image information generation device to composite a pointer cursor displayed on the display image information at the current point of time, to the display image information, and then display the pointer cursor at the position which is distant, in correspondence with the pointing coordinate motion vector calculated by the pointing coordinate motion vector calculation device.

19. An information display system, comprising:

an information processing apparatus;

an information display apparatus which displays information held in the information processing apparatus, on a display surface; and

a pointing apparatus which points at an arbitrary position on a display image displayed by the information display apparatus; the pointing apparatus including an imaging device that images an arbitrary range which is to be imaged by the pointing apparatus, and outputs imaged image information corresponding to the range,

an imaged image information storage device to store therein imaged image information temporally preceding a current point of time, as obtained by imaging a plurality of times, by or without, changing at least one of an imaging position and an imaging angle based on the imaging device, and

a pointing coordinate motion vector calculation device to compare the imaged image information at the current point of time and the imaged image information stored in the imaged image information storage device, and then calculate a pointing coordinate motion vector from a result of the comparison; and

the information processing apparatus includes a display image information storage device to store therein display image information corresponding to the display image, and

a display image information generation device to generate the image information stored in the display image information storage device, as the display image information, and composite a pointer cursor displayed on the display image information at the current point of time, to the display image information, and then display the pointer cursor at the position which is distant in correspondence with the pointing coordinate motion vector calculated by the pointing apparatus.

20. An information display system, comprising:

an information processing apparatus;

an information display apparatus which displays information held in the information processing apparatus, on a display surface; and

a pointing apparatus which points at an arbitrary position on a display image displayed by the information display apparatus; the pointing apparatus including an imaging device that images a certain arbitrary range, and outputs imaged image information corresponding to the range; and

the information processing apparatus includes an imaged image information storage device to store therein imaged image information temporally preceding a current point of time, as obtained by imaging a plurality of times, by or without, changing at least one of an imaging position and an imaging angle of the imaging device of the pointing apparatus,

a pointing coordinate motion vector calculation device to compare the imaged image information at the current point of time as obtained from the imaging device of the pointing apparatus and the imaged image information stored in the imaged image information storage device, and then calculate a pointing coordinate motion vector from a result of the comparison,

a display image information storage device to store therein display image information corresponding to the display image, and

a display image information generation device to generate the image information stored in the display image information storage device, as the display image information, and composite a pointer cursor displayed on the display image information at the current point of time, to the display image information, and then displaying the pointer cursor at the position which is distant in correspondence with the pointing coordinate motion vector calculated by the pointing coordinate motion vector calculation device.

21. The information display system as defined in claim 17, further comprising:
in that the process to compare the imaged image information at the current point of time and the imaged image information temporally preceding the current point of time and then calculating the pointing coordinate motion vector from the result of the comparison performs pattern matching between template image information generated from the imaged image information at the current point of time and the imaged image information temporally preceding the current point of time, thereby to decide which part of the imaged image information temporally preceding the current point of time the imaged image information at the current point of time corresponds to, whereupon it finds a movement magnitude and a moving direction of the imaged image information at the current point of time, on the basis of a result of the decision, so as to calculate the pointing coordinate motion vector from the found movement magnitude and moving direction.

22. The information display system as defined in claim 17, the pointing apparatus being a portable information equipment which has an imaging function and a communication function.

23. The information display system as defined in claim 17, further comprising:
the pointing apparatus including a command input device, the information processing apparatus including a command processing device to accept and process a command from the pointing apparatus, and that, in the information processing apparatus, when the command is given from the command input device after specification of pointing coordinates, the command process is performed so as to reflect a result of the process on the pointing coordinates.

24. The pointing apparatus for use in the information display system as defined in claim 17, further comprising:

functions of comparing the imaged image information at the current point of time and the imaged image information temporally preceding the current point of time, as are obtained in such a way that the arbitrary range is imaged the plurality of times, by or without, changing at least one of the imaging position and the imaging angle of the imaging device included in the pointing apparatus, by the imaging device, and then calculating the pointing coordinate motion vector from the result of the comparison, so as to output the pointing coordinate motion vector to the information processing apparatus.

25. An information processing apparatus for use in the an information display system as defined in claim 18, further comprising:

functions of comparing the imaged image information at the current point of time and the imaged image information temporally preceding the current point of time, as are obtained in such a way that the imaging is performed the plurality of times, by or without, changing at least one of the imaging position and the imaging angle of the imaging device included in the pointing apparatus, calculating the pointing coordinate motion vector from the result of the comparison, and compositing the pointer cursor displayed on the display image at the current point of time, to the display image information, and then displaying the pointer cursor at the position which is distant in correspondence with the calculated pointing coordinate motion vector.

26. A data processing program for a pointing apparatus, in which data processing to be performed by the pointing apparatus as defined in claim 24 comprises:

comparing the imaged image information at the current point of time and the imaged image information temporally preceding the current point of time, as are obtained in such a way that the arbitrary range is imaged the plurality of times, by or without, changing at least one of the imaging position and the imaging angle, by the imaging device included in the pointing apparatus, and then calculating the pointing coordinate motion vector from the result of the comparison; and

the outputting the pointing coordinate motion vector to the information processing apparatus.

27. A data processing program for an information processing apparatus, in which data processing to be performed by the information processing apparatus as defined in claim 25 comprises:

comparing the imaged image information at the current point of time and the imaged image information temporally preceding the current point of time, as are obtained in such a way that the imaging is performed the plurality of times, by or without, changing at least one of the imaging position and the imaging angle of the imaging device included in the pointing apparatus, and then calculating the pointing coordinate motion vector from the result of the comparison; and

the compositing the pointer cursor displayed on the display image at the current point of time, to the display image information, and then displaying the pointer cursor at the position which is distant in correspondence with the calculated pointing coordinate motion vector.

28. A pointer cursor display method in an information display system having an information processing apparatus, an information display apparatus which displays

information held in the information processing apparatus, on a display surface, and a pointing apparatus which points at an arbitrary position on a display image displayed by the information display apparatus, comprising:

the pointing apparatus compares imaged image information at a current point of time and imaged image information temporally preceding the current point of time, as are obtained in such a way that an arbitrary range is imaged a plurality of times, by or without, changing at least one of an imaging position and an imaging angle of an imaging device included in the pointing apparatus, by the imaging device, whereupon a pointing coordinate motion vector is calculated from a result of the comparison, so as to output the pointing coordinate motion vector to the information processing apparatus; and

the information processing apparatus composites a pointer cursor displayed on the display image at the current point of time, to the display image information, and displays the pointer cursor at the position which is distant in correspondence with the pointing coordinate motion vector calculated by the pointing apparatus.

29. A pointer cursor display method in an information display system having an information processing apparatus, an information display apparatus which displays information held in the information processing apparatus, on a display surface, and a pointing apparatus which points at an arbitrary position on a display image displayed by the information display apparatus, comprising:

the pointing apparatus images an arbitrary range by an imaging device included in the pointing apparatus; and

that the information processing apparatus side compares imaged image information at a current point of time and imaged image information temporally preceding the current point of time, as are obtained by imaging a plurality of times, by or without, changing at least one of an imaging position and an imaging angle of the imaging device included in the pointing apparatus, calculates a pointing coordinate motion vector from a result of the comparison, and composites a pointer cursor displayed on the display image at the current point of time, to the display image information, and displays the pointer cursor at the position which is distant in correspondence with the calculated pointing coordinate motion vector.

30. The pointer cursor display method in the information display system as defined in claim 28, further comprising:

the process to compare the imaged image information at the current point of time and the imaged image information temporally preceding the current point of time and then calculate the pointing coordinate motion vector from the result of the comparison,

performs pattern matching between template image information generated from the imaged image information at the current point of time and the imaged image information temporally preceding the current point of time, thereby to decide which part of the imaged image information temporally preceding the current point of time the imaged image information at the current point of time corresponds to, whereupon it finds a movement magnitude and a moving direction of the imaged image information at the current point of time, on the basis of a result of the decision, so as to calculate the pointing coordinate motion vector from the found movement magnitude and moving direction.

31. An information display system, comprising:
 - an information processing apparatus;
 - an information display apparatus which displays information held in the information processing apparatus, on a display surface; and
 - a pointing apparatus which points at an arbitrary position on a display image displayed by the information display apparatus; the pointing apparatus including an imaging device that images an arbitrary range which is to be imaged by the pointing apparatus, and outputting imaged image information corresponding to the range, and
 - a pointing coordinate motion vector calculation device to compare the imaged image information at a current point of time and imaged image information temporally preceding the current point of time, as obtained by imaging a plurality of times, by or without, changing at least one of an imaging position and an imaging angle based on the imaging device, and then calculating a pointing coordinate motion vector from a result of the comparison; and
 - the information processing apparatus includes a display image information storage device to store therein display image information corresponding to the display image,
 - a pointing coordinate specification device to find a tentative pointing position of a pointer cursor after being moved, on the basis of the display image information, the imaged image information from the pointing apparatus, and the pointing coordinate motion vector, and specifying a pointing position of the pointer cursor after being moved, as pointing coordinates within a range containing the tentative pointing position, and
 - a display image information generation device to composite and display the pointer cursor to and at the specified pointing coordinates on the display image information.
32. An information display system, comprising:
 - an information processing apparatus;

an information display apparatus which displays information held in the information processing apparatus, on a display surface; and

a pointing apparatus which points at an arbitrary position on a display image displayed by the information display apparatus; the pointing apparatus including an imaging device capable of imaging an arbitrary range which is to be imaged by the pointing apparatus, and outputting imaged image information corresponding to the range; and

the information processing apparatus includes a pointing coordinate motion vector calculation device to compare the imaged image information at a current point of time and imaged image information temporally preceding the current point of time, as obtained by imaging a plurality of times, by or without, changing at least one of an imaging position and an imaging angle attained by the imaging device of the pointing apparatus, and then calculating a pointing coordinate motion vector from a result of the comparison,

a display image information storage device to store therein display image information corresponding to the display image,

a pointing coordinate specification device to find a tentative pointing position of a pointer cursor after being moved, on the basis of the display image information, the calculated pointing coordinate motion vector, and the imaged image information from the pointing apparatus, and specify a pointing position of the pointer cursor after being moved, as pointing coordinates within a range containing the tentative pointing position, and

a display image information generation device to composite and display the pointer cursor to and at the specified pointing coordinates on the display image information.

33. An information display system, comprising:

an information processing apparatus;

an information display apparatus which displays information held in the information processing apparatus, on a display surface; and

a pointing apparatus which points at an arbitrary position on a display image displayed by the information display apparatus; the pointing apparatus including an imaging device that images an arbitrary range which is to be imaged by the pointing apparatus, and outputs imaged image information corresponding to the range,

a pointing coordinate motion vector calculation device to compare the imaged image information at a current point of time and imaged image information temporally preceding the current point of time, as obtained by imaging a plurality of times, by or without, changing at least one of an imaging position and an imaging angle based on the imaging

device, and then calculating a pointing coordinate motion vector from a result of the comparison, and

a pointing coordinate specification device to find a tentative pointing position of a pointer cursor after being moved, on the basis of the imaged image information, the pointing coordinate motion vector, and the display image information, and then specifying a pointing position of the pointer cursor after being moved, as pointing coordinates within a range containing the tentative pointing position; and

the information processing apparatus includes a display image information storage device to store therein display image information corresponding to the display image, and

a display image information generation device to composite and display the pointer cursor to and at the specified pointing coordinates on the display image information.

34. The information display system as defined in claim 31, further comprising:
the pointing coordinate specification process, which is performed by the pointing coordinate specification device, sets the range with reference to the tentative pointing position, computes correlations at respective positions by performing pattern matching between the imaged image and the display image information at the imaging point of time within the set range, and specifies the pointing coordinates after the motion, on the basis of the computed correlations.

35. An information processing apparatus for use in the information display system as defined in claim 31, further comprising:

functions of finding the tentative pointing position of the pointer cursor after being moved, on the basis of the display image information stored in the display image information storage device, the imaged image information from the pointing apparatus, and the pointing coordinate motion vector, specifying the pointing position of the pointer cursor after being moved, as the pointing coordinates within the range containing the tentative pointing position, and compositing and displaying the pointer cursor to and at the specified pointing coordinates.

36. The pointing apparatus for use in an information display system as defined in claim 31, further comprising:

functions of comparing the imaged image information at the current point of time and the imaged image information temporally preceding the current point of time, as are obtained in such a way that the arbitrary range is imaged the plurality of times by or without, changing at least one of the imaging position and the imaging angle, of the imaging device

included in the pointing apparatus, by the imaging device, and then calculating the pointing coordinate motion vector from the result of the comparison, so as to output the pointing coordinate motion vector to the information processing apparatus.

37. An information processing apparatus for use in the information display system as defined in claim 32, further comprising:

functions of comparing the imaged image information at the current point of time and the imaged image information temporally preceding the current point of time, as are obtained in such a way that the arbitrary range is imaged the plurality of times, by or without, changing at least one of the imaging position and the imaging angle of the imaging device included in the pointing apparatus, by the imaging device, calculating the pointing coordinate motion vector from the result of the comparison, finding the tentative pointing position of the pointer cursor after being moved, on the basis of the calculated coordinate motion vector, the imaged image information, and the display image information, specifying the pointing position of the pointer cursor after being moved, as the pointing coordinates within the range containing the tentative pointing position, and compositing and displaying the pointer cursor to and at the specified pointing coordinates.

38. A pointing apparatus for use in the information display system as defined in claim 33, further comprising:

functions of comparing the imaged image information at the current point of time and the imaged image information temporally preceding the current point of time, as are obtained in such a way that the arbitrary range is imaged the plurality of times, by or without, changing at least one of the imaging position and the imaging angle of the imaging device included in the pointing apparatus, by the imaging device calculating the pointing coordinate motion vector from the result of the comparison, finding the tentative pointing position of the pointer cursor after being moved, on the basis of the pointing coordinate motion vector, the imaged image information at the imaging point of time, and the display image information, and specifying the pointing position of the pointer cursor after being moved, as the pointing coordinates within the range containing the tentative pointing position.

39. A data processing program of an information processing apparatus, in which data processing to be performed by the information processing apparatus as defined in claim 35, comprises:

finding the tentative pointing position of the pointer cursor after being moved, on the basis of the display image information stored in the display image information storage

device, the imaged image information from the pointing apparatus, and the pointing coordinate motion vector;

the specifying the pointing position of the pointer cursor after being moved, as the pointing coordinates within the range containing the tentative pointing position; and

compositing and displaying the pointer cursor to and at the specified pointing coordinates.

40. A data processing program of a pointing apparatus, in which data processing to be performed by the pointing apparatus as defined in claim 36 comprises:

comparing the imaged image information at the current point of time and the imaged image information temporally preceding the current point of time, as are obtained in such a way that the arbitrary range is imaged the plurality of times, by or without, changing at least one of the imaging position and the imaging angle of the imaging device included in the pointing apparatus, by the imaging device and then calculating the pointing coordinate motion vector from the result of the comparison; and

outputting the pointing coordinate motion vector to the information processing apparatus.

41. A data processing program of an information processing apparatus, in which data processing to be performed by the information processing apparatus as defined in claim 37:

comparing the imaged image information at the current point of time and the imaged image information temporally preceding the current point of time, as are obtained in such a way that the arbitrary range is imaged the plurality of times, by or without, changing at least one of the imaging position and the imaging angle of the imaging device included in the pointing apparatus, by the imaging device, and then calculating the pointing coordinate motion vector from the result of the comparison;

finding the tentative pointing position of the pointer cursor after being moved, on the basis of the calculated coordinate motion vector, the imaged image information, and the display image information,

specifying the pointing position of the pointer cursor after being moved, as the pointing coordinates within the range containing the tentative pointing position; and

compositing and displaying the pointer cursor to and at the specified pointing coordinates.

42. A data processing program of a pointing apparatus, in which data processing steps to be performed by the pointing apparatus as defined in claim 38, comprises:

comparing the imaged image information at the current point of time and the imaged image information temporally preceding the current point of time, as are obtained in such a way that the arbitrary range is imaged the plurality of times, by or without, changing at least one of the imaging position and the imaging angle of the imaging device included in the pointing apparatus, by the imaging device, and then calculating the pointing coordinate motion vector from the result of the comparison;

finding the tentative pointing position of the pointer cursor after being moved, on the basis of the pointing coordinate motion vector, the imaged image information at the imaging point of time, and the display image information; and

specifying the pointing position of the pointer cursor after being moved, as the pointing coordinates within the range containing the tentative pointing position.

43. A pointer cursor display method in an information display system having an information processing apparatus, an information display apparatus which displays information held in the information processing apparatus, on a display surface, and a pointing apparatus which points at an arbitrary position on a display image displayed by the information display apparatus, comprising:

the pointing apparatus compares imaged image information at a current point of time and imaged image information temporally preceding the current point of time, as are obtained in such a way that an arbitrary range is imaged a plurality of times, by or without, changing at least one of an imaging position and an imaging angle of an imaging device included in the pointing apparatus, by the imaging device, a pointing coordinate motion vector is calculated from a result of the comparison, so as to output the pointing coordinate motion vector to the information processing apparatus; and

the information processing apparatus finds a tentative pointing position of a pointer cursor after being moved, on the basis of the imaged image information from the pointing apparatus, the pointing coordinate motion vector, and the display image information, specifies a pointing position of the pointer cursor after being moved, as pointing coordinates within a range containing the tentative pointing position, and composites and displays the pointer cursor to and at the specified pointing coordinates on the display image information corresponding to the display image.

44. A pointer cursor display method in an information display system having an information processing apparatus, an information display apparatus which displays information held in the information processing apparatus, on a display surface, and a pointing

apparatus which points at an arbitrary position on a display image displayed by the information display apparatus, comprising:

the pointing apparatus images an arbitrary range by an imaging device included in the pointing apparatus; and

the information processing apparatus compares imaged image information at a current point of time and imaged image information temporally preceding the current point of time, as are obtained by imaging a plurality of times, by or without, changing at least one of an imaging position and an imaging angle of the imaging device included in the pointing apparatus, by the imaging device, calculates a pointing coordinate motion vector from a result of the comparison, finds a tentative pointing position of a pointer cursor after being moved, on the basis of the calculated coordinate motion vector, the imaged image information, and the display image information corresponding to the display image, specifies a pointing position of the pointer cursor after being moved, as pointing coordinates within a range containing the tentative pointing position, and composites and displays the pointer cursor to and at the specified pointing coordinates on the display image information.

45. A pointer cursor display method in an information display system having an information processing apparatus, an information display apparatus which displays information held in the information processing apparatus, on a display surface, and a pointing apparatus which points at an arbitrary position on a display image displayed by the information display apparatus, comprising:

the pointing apparatus compares imaged image information at a current point of time and imaged image information temporally preceding the current point of time, as are obtained by imaging an arbitrary range a plurality of times, by or without, changing at least one of an imaging position and an imaging angle of an imaging device included in the pointing apparatus, by the imaging device, calculates a pointing coordinate motion vector from a result of the comparison, that it finds a tentative pointing position of a pointer cursor after being moved, on the basis of the pointing coordinate motion vector, and the display image information corresponding to the display image, and specifies a pointing position of the pointer cursor after being moved, as pointing coordinates within a range containing the tentative pointing position; and

the information processing apparatus composites and displays the pointer cursor to and at the specified pointing coordinates on the display image information.

46. The pointer cursor display method in the information display system as defined in claim 43, further comprising:

the pointing coordinate specification process sets the range with reference to the tentative pointing position, computes correlations at respective positions by performing pattern matching between the imaged image and the display image information at the imaging point of time within the set range, and specifies the pointing coordinates after the motion, on the basis of the computed correlations.